thing it could require. Although the liberal endowment of universities and schools is now fortunately much more common, especially in America, than it used to be, yet there are few instances of such liberality as the Nizam has shown towards definite subjects of scientific research. For the excellent example they have shown in this matter, the Nizam and his enlightened Minister, Sir Asman Jah, deserve the thanks of the scientific world, while they also deserve that of the public in general for their endeavour to save life and lessen suffering by rendering the administration of anæsthetics so safe that they may be employed without fear whenever they are required.

HYGIENE.

Hygiene, or Public Health. By Louis C. Parkes, M.D. (London: H. K. Lewis, 1889.)

DR. LOUIS PARKES has conferred an important service by the opportune publication of his manual of hygiene. The public mind has been slow to perceive the importance of the science of preventive medicine. For nearly half a century Sir Edwin Chadwick and others have preached the doctrine. It fell for a long time on sterile ears. No doubt provisions have been made by Parliament from time to time, when some special danger or disease-cause was brought prominently into notice: not, indeed, as a part of a system of sanitary protection, but as if it were the only matter to be cared for. Thus, vaccination was made compulsory to stop small-pox, but for a long time many other diseases were ignored. These scattered efforts in sanitary legislation were brought to a focus in 1875, and systematic sanitation may be said to have been instituted by the division of the country into sanitary areas, and by the appointment of medical officers of health. These provisions were rather a theoretical recognition of the importance of the subject than a practical creation of efficiency, for the medical officers in a large number of instances have not received such remuneration as would enable them to give their whole time to their duties; nor do they possess security of tenure. They have been, for the most part, men in local practice, who have been content to receive an honorarium in some cases as low as £20 or £10, and occasionally even £5 and £3 a year. Such payments could not be expected to induce men to do more than give a nominal service to their official duties; and it is, indeed, notorious that in many instances the object of members of the sanitary authority which has made the appointment, who are themselves owners of house property, has been to nominate men who would let matters rest, and would not compel owners of cottages to spend money on sanitation.

We are now, however, entering upon a new era in sanitation. The creation of County Councils which took place last year has introduced a new feature. Although the powers vested in these bodies are permissive and somewhat tentative, it has already become quite certain that they will, sooner or later, bring the whole sanitary service of the country under their general supervision and control.

The Local Government Act of 1888 lays down the provision that the medical officer of health to be appointed by a county must be qualified in sanitary knowledge—that is to say, in the knowledge of the prevention of disease, as distinguished from curative knowledge. It will, therefore, be necessary that the men appointed shall have spent time and money in obtaining the required qualifications for their duties: hence they will expect adequate salaries to remunerate them for the trouble and expense which they will have incurred in thus educating themselves. The call for education in preventive medicine will react upon the medical schools and the various degree-conferring bodies—such as the Universities—and will compel them to hold examinations in, and to confer diplomas or certificates upon the possessors of, sanitary knowledge. Moreover, the sanitary authorities, in order to justify to themselves the higher salaries which they will be compelled to pay, will be induced to place enlarged areas under the medical officer, and, in order that he may effectually perform his duties, he will insist on being furnished with a better educated staff of sanitary inspectors or inspectors of nuisances than have been, as a rule, appointed under the old *régime.*

It is thus evident that there will soon be a great call for sanitary education, and Dr. Parkes's volume forms a very useful commentary upon what are the general heads comprised in a course of instruction in the methods necessary for applying various branches of science to the prevention of disease. A glance at the table of contents shows the very large field embraced under the title of preventive medicine. It concerns not only the medical man, but the engineer, the architect, the chemist, the physiologist, the meteorologist, and the statistician. The questions to be studied include climatic conditions; the effect on health of the state and movement of the atmosphere; the health of soils; the purity of water-supply, and the prevention of injury to health from fouled water; the construction of buildings, their warming, lighting, and ventilation; questions of food and clothing; the history of communicable diseases; and bacteriology, as well as hygienic chemistry and statistics.

A brief summary of the present position of our knowledge shows us that preventive medicine is still far removed from being an exact science. We have, no doubt, lately made much progress in removing from the medical man the imputation that his proceedings were empirical. Physiological studies in recent years have established the relationship between certain diseases and the presence of micro-organisms; and although this relationship may not be as universal as some persons would hold, yet we know that there is a positive relationship in the case of certain diseases. When the causes of diseases are known; when the action of the causes can be studied, and their mode of entrance into the body ascertained; when the methods which can be applied to their destruction are discovered; then the science of the prevention of disease ceases to be empirical.

Whilst, however, our progress in this knowledge has of late years been extremely rapid as compared with former experience; yet when, as in this volume, we are brought face to face with the various problems of the prevention of disease, we are amazed to find what a vast field is still unexplored in the knowledge of the causes of disease. Dr. Parkes has given a very interesting summary of our knowledge on this part of the question in his chapters on

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contagia and communicable diseases. We may be said at present to be only standing on the threshold of this very intricate subject. Even in the case of those diseases which have been ascribed with the greatest assurance to the presence of organisms in the blood or the tissues, we are told that it is as yet uncertain whether the symptoms of disease are the results of the direct action of microbes themselves upon the tissues, or are caused by their indirect action in producing poisonous alkaloids or ferments. We have not yet elucidated the curious connection between the diseases of animals and mankind; but whilst we are gradually acquiring the conviction that some diseases from which animals suffer are communicable to the human race, it is at any rate satisfactory at the same time to have arrived at the certainty that those laws of cleanliness in air, soil, and water, which are the basis of human sanitation, are the most effective safeguards to be observed in the case of domestic animals, if certain classes of disease are to be avoided. But with all our increased knowledge of the existence and methods of propagation of the various forms of organisms which appear to co-exist with certain forms of disease, we have not yet discovered why certain diseases become epidemic at certain times, whilst they lie comparatively dormant at other times; Nature has not yet revealed all her secrets to the microscope or to the laboratory.

Take as an instance, the influenza which is now present with us. Its epidemics are historical. It has appeared over and over again at somewhat distant intervals. But we do not know why it comes at one time and not at another. It has been specially described on various occasions since 1557. In 1837 it covered the whole of the north of Europe in fifteen days. It travels as rapidly through sparsely inhabited as through populous countries. In 1780 it manifested itself in ships in mid-ocean, which had had no communication with the shore. The facts connected with its incidence are thus well known. Its progress would scarcely seem to be accounted for by contagion or infection in the common acceptance of the word. Is its present advent due, like the beautiful sunsets with which we were favoured a few years ago, as some observer suggests, to a catastrophe in some distant part of the globe? or is it owing, as M. Descroix, of the Meteorological Observatory at Montsouris, tells us, to the remarkably stagnant atmosphere of last autumn? Large populations agglomerated in towns depend, for the removal of the foul emanations continually passing into the atmosphere from their midst, upon the action of winds and storms, and these causes of ventilation were notably absent during the past autumn; and Dr. Descroix points out that the failure to remove this impurity would favour the propagation of organisms injurious to the health of the community, acting in this respect just as a festering drain or manure heap would act.

The advance which each separate science makes opens out new views to the hygienist, and this short reference to the epidemic of influenza serves to point out the extent of the subject, and to impress upon us the fact that it is almost impossible that a moderate-sized treatise by a single individual could form an adequate text-book for the student in these various and intricate questions.

Dr. Parkes's volume, admirable as it is in many respects, leaves something to be desired in its treatment of some of the subjects. We would especially refer to those relating to civil engineering and architecture, which are not the special subjects of a medical man. The treatment of these branches presents some weak points, and there is an occasional tendency to recommend specific inventions rather than to enunciate principles, which may somewhat militate against the general acceptance of the volume as a complete and permanent text-book.

It would have been better if the educational features of the book had been limited to those special subjects with which the profession of the author has made him most familiar. The work is, however, a convenient hand-book, and will serve as a valuable guide to show the student what are the several subjects which have to be studied; and in that sense we can safely recommend it as an adjunct to the library of every sanitarian.

IN THE HIGH ALPS.

Im Hochgebirge. Wanderungen von Dr. Emil Zsigmondy. Mit Abbildungen von E. T. Compton. Herausgegeben von K. Schulz. (Leipzig: Duncker and Humblot, 1889.)

THIS handsome volume possesses a melancholy interest, for it is in reality a memorial to a young and ardent mountaineer who was killed by a fall from a precipice in the year 1885. Emil Zsigmondy was by descent a Hungarian, but was born and educated in Vienna, where his father practised as a physician. The son followed the same profession, of which he was a distinguished student. As a boy he showed a love of mountain-climbing. At the age of fifteen, he and his brother Otto, without guides, made an ascent of the Reiseck, a peak 2958 metres high. The expedition occupied twenty-six hours, of which twenty-two were spent in actual walking, a remarkable feat of endurance on the part of two lads.

After this Emil made annually an Alpine excursion, the expeditions increasing in difficulty and (with the exception of one year) in number. The first of which a description was published was accomplished in his eighteenth year, and after this references to the journals of foreign Alpine Clubs and similar publications are frequent on the list. Altogether, as we are told in the brief biographical notice prefixed to this work, Emil Zsigmondy, though he perished a few days before completing his twenty-fourth year, had climbed nearly 100 summits of more than 3000 metres in height above the sea—in more than nine cases out of ten unaccompanied by guides. Most of the expeditions described in this volume have already appeared in various journals, and describe excursions which in themselves are not new; but many of them have this special interest, that they were made without guides. Sometimes the brothers were alone, but on the more difficult excursions they were generally accompanied by one or two trusty friends, such as Prof. Schulz, editor and part-author of this work.

The book is a record of Alpine expeditions told in plain but graphic language. It scarcely touches upon scientific questions, though we are informed that Emil was a student of Alpine botany, zoology, and geology, and published some observations on these subjects in a work which

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